Polygon Build Functionality in MineSight® 3-D

New functionality in MineSight 3-D (MS3D) v4.6 allows you to rapidly build polygons from a starting polygon and clipping strings.

What Does This New Functionality Do?

Polygon build functionality takes a starting polygon or polygons and clipping strings (polylines or polygons) and generates all possible internal polygons.

In Figure 1, the green polygon is clipped by the blue polylines and the pink polygons are generated by the **Polygon Build** functionality. Notice that the intersecting polylines in the middle, neither of which cuts the polygon on its own, combine to form one of the polygon cuts.

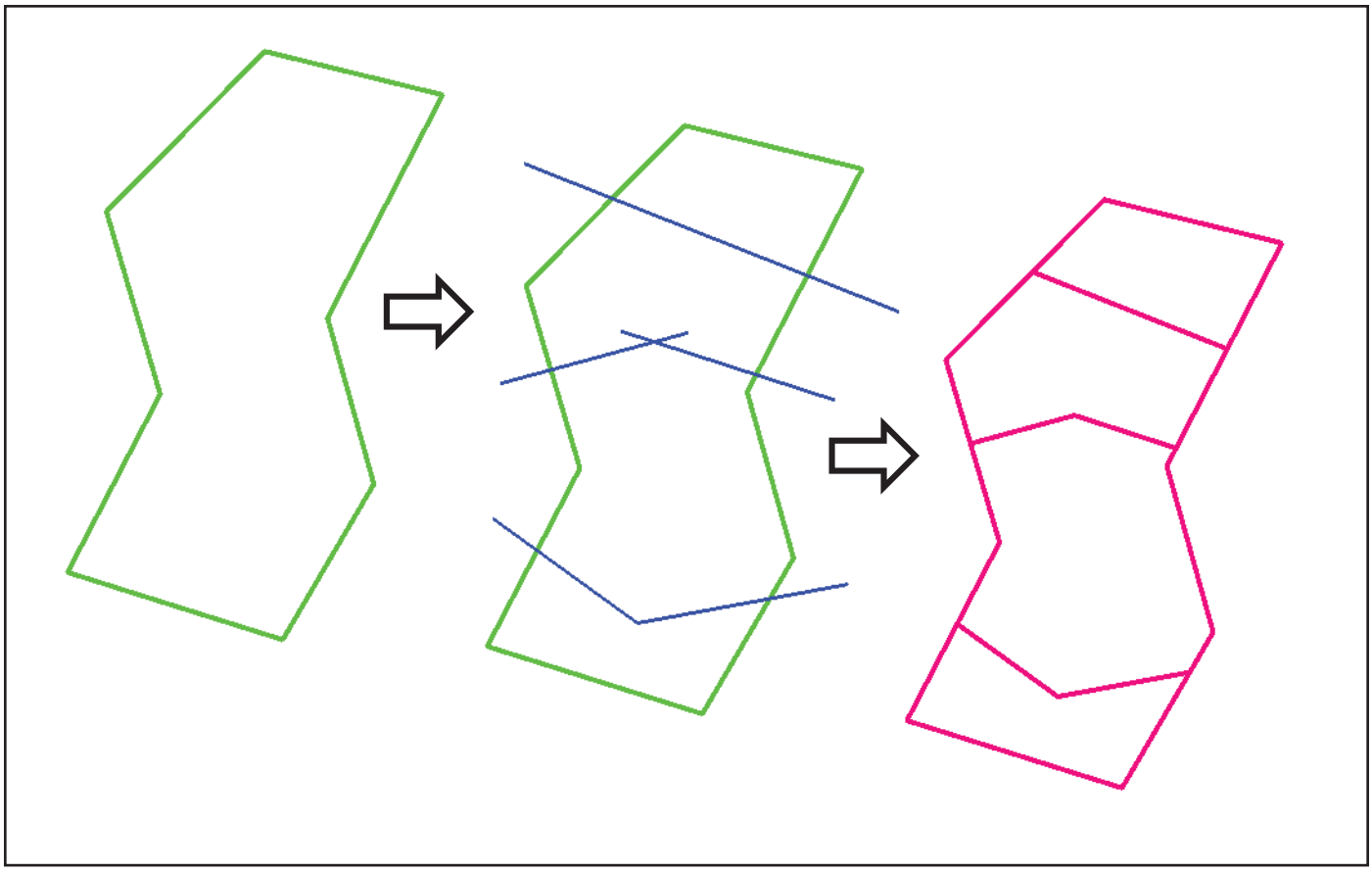
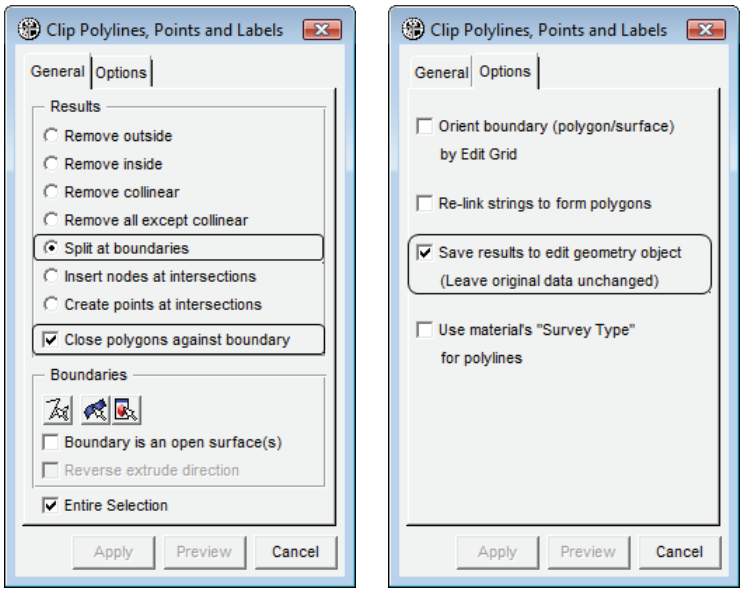


Figure 1. Polylines intersecting a polygon are used to generate four new polygons.

Where Is It Located?

The new functionality has been added to the existing **Clip Polylines, Points and Labels Tool** under the **Polyline** menu. Under the **Results** section (Figure 2a), when you **Split at boundaries**, you can now use the **Close polygons against boundary** option. These two options used together provide the **Polygon Build** functionality.



Figures 2a and 2b. The **Clip Polylines, Points and Labels** *function showing the* **Polygon Build** *options.*

How Is It Useful?

A couple of obvious areas where this new functionality is useful are in the generation of bench 'blast master' plans and in grade control.

Previously in grade control, in order to split blasts into multiple ore types and destinations, you needed to manually digitize (and snap) each block separately either in MS3D or MineSight Interactive Planner (MSIP).

With the **Polygon Build** functionality, a single ore outline polygon can easily be broken into destination ore type chunks. This ore outline polygon can be manually digitized on a bench while viewing the block model, or it could even be generated automatically through a script.

Once you have the ore outline you can then digitize polylines that divide the starting polygon into chunks. In the example, the black polygon has been digitized around the higher grade material. The ore was then split using polygons and polylines into manageable chunks based on grade and material destination (Figure 3).

Figure 3. The black polygon encompasses the higher grade material. The blue polylines and polygons divide the material based on grade and material destination requirements.

The **Polygon Build** functionality generates the polygons quickly and assures they are snapped together correctly as shown in Figure 4. These polygons can now be imported into the MSIP for grade/tonnes reporting.

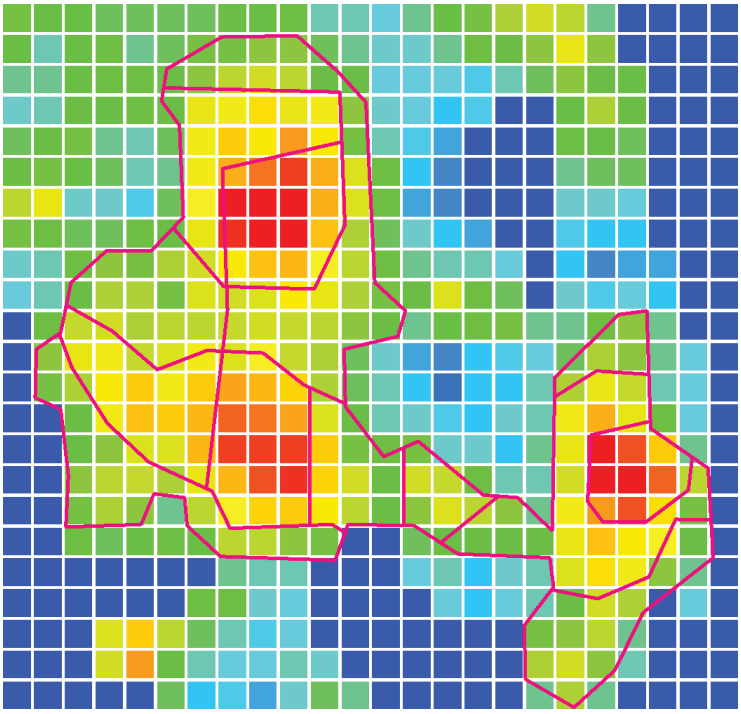


Figure 4. Polygons resulting from the **Polygon Build** *functionality.*

How Do I Use It?

The best way to utilize the polygon build functionality is:

1. Place the polygon(s) to be clipped and the clipping strings in separate geometry objects. This makes selecting large amounts of data easier.
2. Select the polygon(s) to be divided.
3. Open the **Clip Polylines** function from the **Polyline** menu as shown in Figure 5.

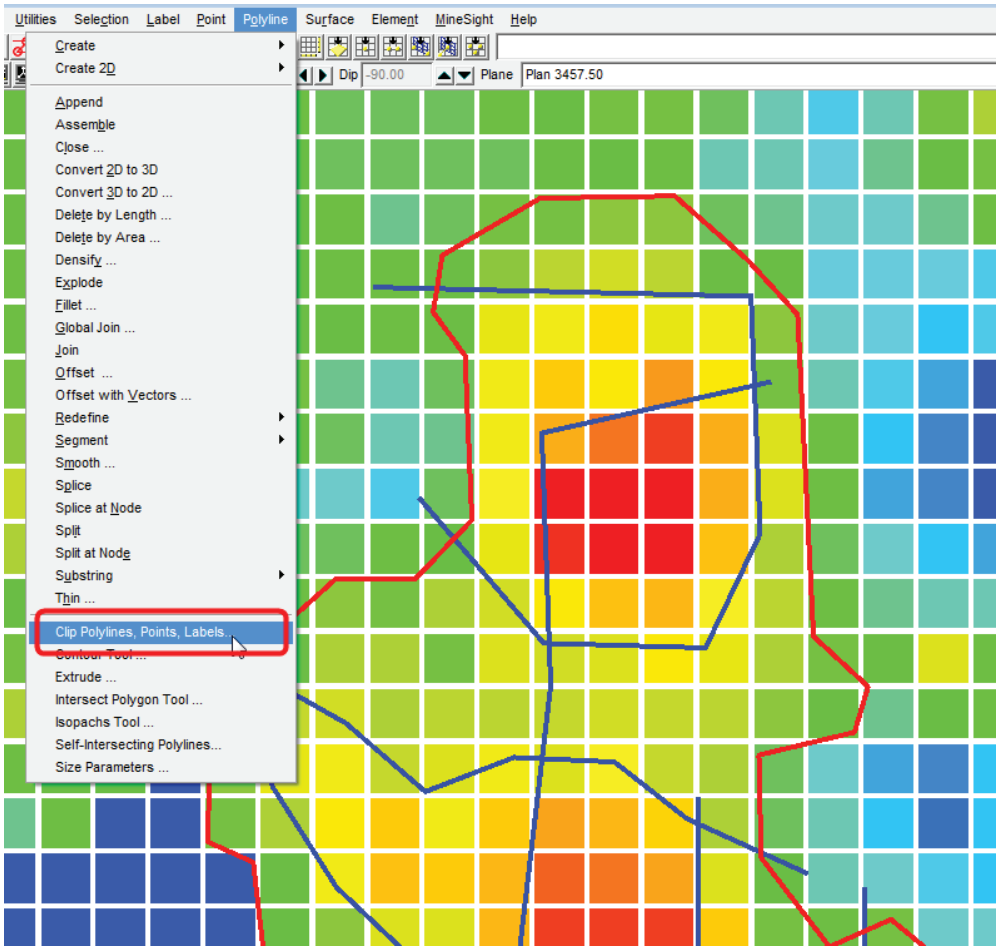


Figure 5. **Clip Polylines** *is under the* **Polyline** *menu.*

4. Select the **Split at boundaries** option (Figure 2a)
5. Toggle ON **Close polygons against boundary** (Figure 2a)
6. Toggle ON **Save results to edit geometry object** (optional, Figure 2b). Use this option to send the resulting polygons to a separate geometry object.
7. Either select from the viewer the polygons to be divided or toggle the **Entire Selection** option to divide all the polygons in the current selection set.
8. Use the **Select Polygon(s)** icon  (don't worry about the name—it's for picking polylines or polygons) and select the clipping strings. Notice the polygon to be divided cannot be reselected.
9. Preview the results. If they look good, then **Apply**.

What's Next?

If you want to know more about this new feature, please give your local technical support group a call at 520.326.1860 or send an email to ts@mintec.com. They will be happy to assist you.